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ABSTRACT

This booklet describes how to make large two-dimensional models of dinosaur skeletons which can be effective teaching tools. Small laminated wood dinosaur models are enlarged, traced, and transferred to tri-wall cardboard (one-half inch thick) and cut out with a saber saw. Parts are then slotted and numbered for easy assembly. The result is a kit that can be assembled by students from the first grade up, with little teacher supervision. Another project is to create an archaeological dig, using beef or chicken bones buried in a 15-foot square plot. (PG)

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THERE COULD BE A DINOSAUR IN YOUR LIFE!

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by beth jacob
and bill dempsey

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FORWARD

Teacher demand for materials concerning dinosaurs led to the development of the dinosaur theme as a vehicle for integrating a number of academic subjects. Where is a child (or adult, for that matter) who is not enchanted with real monsters that once inhabited the earth? As center staff attempted to provide dinosaur materials they, too, became intrigued by the "critters."

Beth Jacob, SATC staffer, spent many hours researching dinosuars, accumulating related materials, creating monstrous bones and painting reptilian murals. Her greatest achievement no doubt lies in making thoughtful connections of past with present and theme with discipline, then sharing her creations. When Bill Dempsey, local science teacher, began his work with the Teacher Center, common interests resulted in There Could Be A Dinosaur In Your Life.

Our appreciation goes to all who have contributed to this publication.

Mary E. Hamilton

Mary E. Hamilton, Director
Southwest Arkansas Teacher Center

DINOSAURS...

Any teacher who has taught units on dinosaurs knows that kids love to study them. There is something fascinating about every facet of what is known (or not known) about them: their size, their sudden disappearance, their fossil bones and footprints, their methods of reproduction, their dietary habits . . . . You name it: kids enjoy learning about it. Unfortunately, not all schools are near a museum where dinosaur skeletons or reproductions are on display. Therefore, teachers must depend on books or filmstrips for pictures to show their students. But two-dimensional images do not do justice to the impact experienced when standing at the foot of one of those gigantic monsters from the past. A semblance of that feeling could be had if large models of dinosaurs were available to use in the classroom. So the Southwest Arkansas Teacher Center dinosaurs were born . . . .

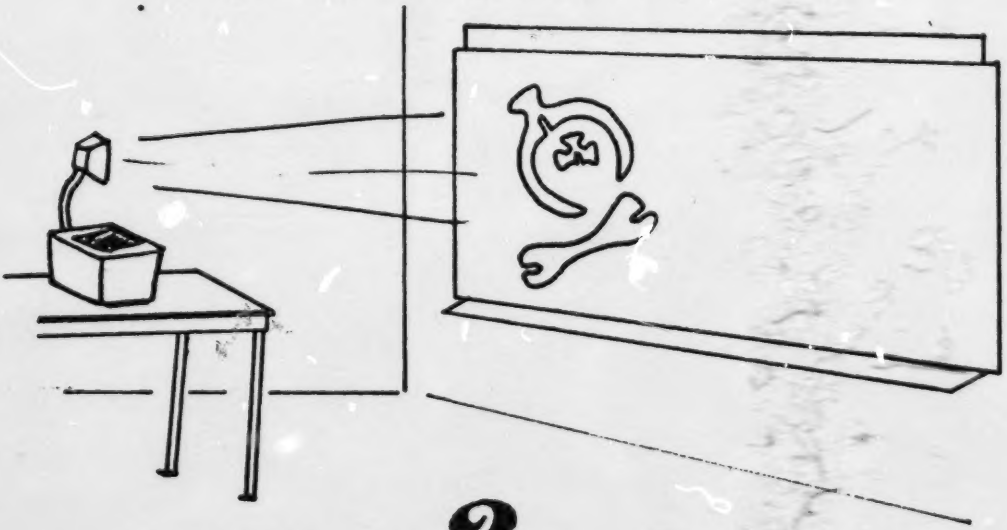
BLOW THEM UP. . .

Small laminated wood kits for constructing three-dimensional dinosaur skeletons are now available at numerous hobby and gift shops. The skeletons are assembled by fitting the pre-cut slotted pieces together, matching their numbers.

We decided to enlarge the kits.

Small bones were arranged on plastic photographic film in the darkroom. The 10" X 13" film sheets were exposed and developed, resulting in a black sheet of film with transparent bones. The original wooden bones were then re-matched with their images and a red opaque blockout marker used to number the shapes on the film.

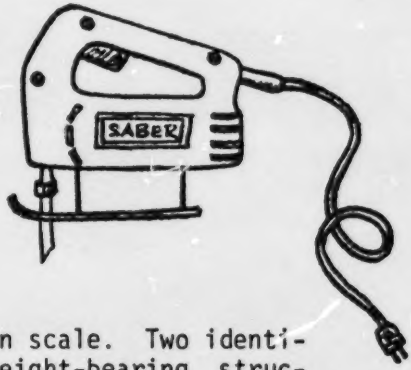
The film sheets were placed on an overhead and the images projected onto a 4' X 10' sheet of tri-wall cardboard. (A blackboard's chalk tray proved to be



a perfect place to rest the cardboard: the tray keeps the sheet level and steady at a good height for drawing around the bones without much stooping or stretching, and you can push the sheet back and forth to use all available space without disturbing the overhead.)

Tracing off the backbones first (the largest pieces of the puzzle) made it possible to decide just how large the saurians would be made. The overhead must not be moved once the size is decided upon, or the scale of the parts will be changed. It is advisable to use a table which is not easily nudged or moved: the overhead's position can then be marked with masking tape. Check often. The film can be moved around in order to place pieces close together on the tri-wall. Smaller vertebrae can sometimes be put inside rib bones.

The parts were cut from the tri-wall using a saber saw with a knife-edged blade in it. This blade leaves no sawdust, and the scraps of discarded cardboard are easy to pick up. The numbered slots must be cut to the thickness of the material used: our first attempt at slot-cutting resulted in slots which were much too wide, due to the differences in scale. Two identical pieces were cut for all weight-bearing structures: legs, pelvic bones, backbones. Matched pieces were then laminated using Elmer's Carpenter's Glue (buy it by the gallon to get the best deal.)



The glue was spread thinly but evenly over the entire surface area to be laminated. Glued pieces were then put on a flat surface and weighted or clamped down evenly, taking care not to let the pieces slide apart. For large pieces -- like the long backbones--long tables turned upside down over the pieces made good pressing weights.

Cut the slots in the doubled pieces after they have been glued and let dry overnight. This saves trying to match up all those little slots, some of which might be off just a fraction of an inch.

When all pieces had been cut out, laminated and slotted, the slot numbers were printed on. Rubber stamp sets having nice large numbers are especially neat and easy to read. With rubber stamps, nothing has to be too straight or too neat: a little unevenness results in a hand-made, rather funky look.

You will find that initially the parts fit tightly, but after a few assemblies the parts get broken in and the models slide together easily.

RETURN WITH US NOW TO THOSE THRILLING DAYS OF YESTERYEAR...

Two dinosaurs are currently residing at the Teacher Center in Texarkana. "Rex" is an eight foot long Tyrannosaurus Rex. "Sarah" is a thirteen foot long Triceratops. A twenty foot Brontosaurus was last seen hanging around the Hot Springs Teacher Center, as a result of a workshop exchange deal. Rex and Sarah are available to all teachers in the SATC region on a check-out basis. They are designed to be taken to a classroom and assembled by the students bone-by-bone.

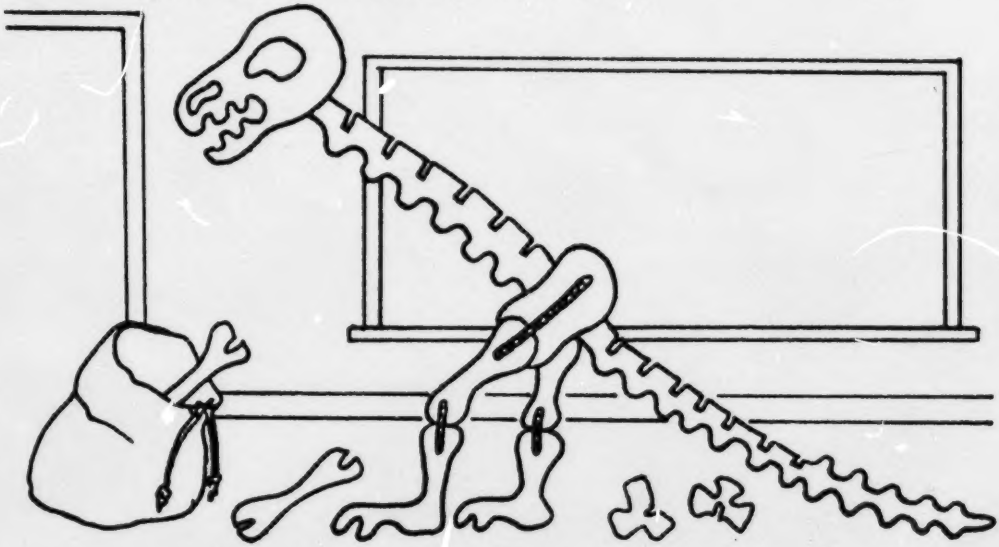
Sarah is quite stable on her four legs. However, because of the delicate balance involved in Rex's two-legged stance, a thin metal rod is used to help support him.

Other plots and plans are currently in the works at the Teacher Center. New materials (foam-core, styrofoam, fiberglass) are under consideration. Plans to use a skeletal cardboard dinosaur as a framework for a huge papier mache model have not yet been realized. A feasibility study is underway. Just give us time . . . .

ADVANTAGES

These kits can be assembled by students from the first grade up with a little teacher supervision and a little help. The strong, light-weight tri-wall pieces interlock like a gigantic three-dimensional jigsaw puzzle. Students can get a feel for what a paleontologist goes through when he must piece his findings together one bone at a time. The Finished product is a simulated dinosaur skeleton that is from one-third to one-half as large as the actual skeleton. In the confines of a classroom they seem huge, giving the students a good concept of dinosaur size.

To give kids an even better idea of size, blow up a couple of bones--a rib bone and a thigh bone, for instance---to a size comparable to that of the extinct reptile's true proportions. Hang the bones up in the classroom and label them.



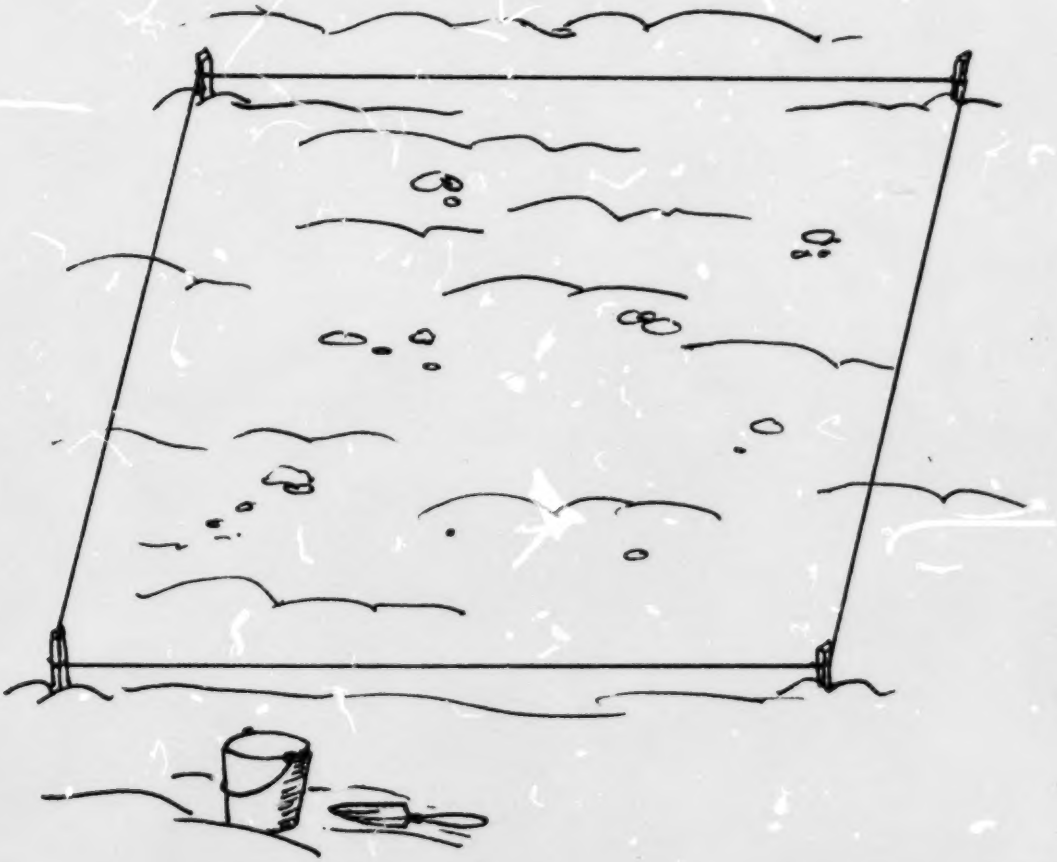
DIG UP YOUR OWN FOSSIL DINOSAUR...

Construct your very own archaeological dig. This takes some time and thought, but can be worth the effort.

Find a place close to your school where you can mark off an area ten or fifteen feet square. Collect some bones: fish or chicken bones are all right, but beef bones are much more durable. You might talk to your butcher. Boil the bones to make sure no shreds of raw flesh cling to them. Carry the cleaned bones out to your plot of ground, dig the ground up and bury them. (You may be able to lay out a chicken so the shape of the bird is discernable.)

While you are preparing the dig, you must also prepare your students. During the dinosaur discussions talk also about archaeology and paleontology and the people who work in these fields. Do some research. Find out what people work with digs and museums: rangers, curators, paleontologists, geologists. Discover what they do, the tools they use and how they work and cooperate with each other. Then introduce your kids to the dig and stand clear.

Use your own judgement on this one. You may want to have archaeological teams go out into the field at different times. Opening a museum and selecting a curator and fields of interest for displays in the museum are other possibilities.



RESOURCES AVAILABLE

THE TEACHER CENTER ORIGINAL DINOSAUR KIT!!

Giant Dinosaurs, Erna Rowe (Scholastic Book Services, New York)
The World of Dinosaurs, Richard Moody (Grosset and Dunlap, New York)
The Strange World of Dinosaurs, Dr. John H. Ostrum (G.P. Putnam's Sons, New York)
Dinosaurs and Other Prehistoric Reptiles, Jane Werner Watson (Golden Press, New York)
Dinosaurs and Their World, Laurence Pringle (Harcourt Brace Jovanovich, New York)
The Last of the Dinosaurs (Bellerophon Books, Santa Barbara, California)
A Coloring Book of Dinosaurs (Bellerophon Books, Santa Barbara, California)
"The Age of Reptiles" poster mural by Rudolph Zallinger, guide included (Yale Peabody Museum of Natural History, New Haven, Connecticut)
Dinosaur Puzzles (4 assorted)
DLM Dinosaur Puzzles with pictures to go by (Developmental Learning Materials, Niles, Illinois)
Dinosaur Pop-Ups
Plastic Dinosaur Set

DINOSAURS: cassette tape, filmstrip (National Geographic)

ADVENTURES IN DINOSAUR LAND: cassette tapes, filmstrips (Educational Enrichment Materials, The New York Times, New York)

PATTERNS

SATC's Artist-in-Residence, Mike Ellis, cleverly made patterns on transparent photographic film. These patterns are usable as transparencies on overhead projectors. With them, your dinosaur can be blown up to any size. You can order patterns from the Center for a nominal sum:

Brontosaurus	7.50
Triceratops	6.00
Tyrannosaurus Rex	6.00

TRI·WALL

Tri-wall cardboard is three layers of brown corrugated cardboard laminated together to make a sheet ½" thick. It comes in 4'x5' and 4'x10' sheets. The material is strong but lightweight and easy to work with. It is often used in making classroom furniture. Tri-wall is available from:

General Packaging Corporation
200 East Arapaho Road
Richardson, Texas 75601

Call GPC at 214/234-5499 for information on latest cost estimates and shipping charges.

"Ichthyosaurs are gone, mosasaurs are gone, pterosaurs are gone. There's none of the old crowd left."